WHAT IS CLAIMED IS:

1. A magnetic head comprising a lower core layer, an upper core layer, a non-magnetic gap layer positioned between the lower core layer and the upper core layer, and a coil layer, provided surrounding a magnetic coupling portion between the lower core layer and the upper core layer, for applying a magnetic field to the lower core layer and the upper core layer,

wherein the upper core layer, made of an FeNiX alloy (X being an element of one of rhenium Re and molybdenum Mo), and defined by an lower surface facing the lower core layer and an upper surface opposed to the lower surface, comprises a rising portion that gradually rises from a side opposing a recording medium toward a deeper side of the head with the lower surface and the upper surface gradually parting away from the lower core layer, and a core leading portion where the lower surface and the upper surface extend in parallel with the lower core layer, and

wherein a concentration difference of the upper core layer between a concentration of iron by weight percent and a concentration of the element X by weight percent is smaller at any backward position at a thickness center than at any frontward position, located more frontward than the backward position, at the thickness center in each of the leading portion and the rising portion where the thickness center lies at a half-thickness level of the thickness of the upper core layer between the upper surface and the lower surface

thereof, the thickness being along a direction of line normal to the lower surface.

2. A magnetic head according to claim 1, wherein the frontward position is at a leading edge opposing the recording medium, and the backward position is at an apex where the upper surface is spaced farthest apart from the lower core layer.

3. A magnetic head according to claim 1, wherein the concentration difference is gradually varied from the frontward position to the backward position along a center line that extends at the thickness center of the upper core layer from the opposing side to the deeper side.

4. A magnetic head according to claim 1, wherein the concentration of iron by weight percent of the upper core layer is smaller at the backward position at the thickness center than at any frontward position at the thickness center in each of the core leading portion and the rising portion.

5. A magnetic head according to claim 4, wherein the concentration of iron by weight percent of the upper core layer is gradually varied from the frontward position to the backward position along a center line that extends at the thickness center of the upper core layer from the opposing side to the deeper side.

6. A magnetic head according to claim 1, wherein the concentration of the element X by weight percent of the upper core layer is larger at the backward position at the thickness center than at any frontward position at the thickness center in each of the core leading portion and the rising portion.

7. A magnetic head according to claim 6, wherein the concentration of the element X by weight percent of the upper core layer is gradually varied from the frontward position to the backward position along a center line that extends at the thickness center of the upper core layer from the opposing side to the deeper side.

8. A magnetic head according to claim 1, wherein a saturation magnetic flux density of the upper core layer is smaller at the backward position at the thickness center than at any frontward position at the thickness center in each of the core leading portion and the rising portion.

9. A magnetic head according to claim 1, wherein a specific resistance of the upper core layer is larger at the backward position at the thickness center than at any frontward position at the thickness center in each of the core leading portion and the rising portion.

10. A magnetic head comprising a lower core layer, an upper core layer, a non-magnetic gap layer positioned between

the lower core layer and the upper core layer, and a coil layer, provided surrounding a magnetic coupling portion between the lower core layer and the upper core layer, for applying a magnetic field to the lower layer and the upper core layer,

wherein the upper core layer, made of an FeNiX alloy (X being an element of one of rhenium Re and molybdenum Mo), and defined by an lower surface facing the lower core layer and an upper surface opposed to the lower surface, comprises a rising portion that gradually rises from a side opposing a recording medium toward a deeper side of the head with the lower surface and the upper surface gradually parting away from the lower core layer, and a core leading portion where the lower surface and the upper surface extend in parallel with the lower core layer,

wherein a concentration difference of the upper core layer between a concentration of iron by weight percent and a concentration of the element X by weight percent is smaller at an upper position than at a lower position where the lower position is any point in one of the core leading portion and the rising portion and the upper position is any point that is closer to the upper surface than the lower position in the one of the core leading portion and the rising portion.

11. A magnetic head according to claim 10, wherein the lower position lies in the lower surface of the upper core layer, and the upper position lies in the upper surface of the upper core layer.

12. A magnetic head according to claim 10, wherein the concentration difference is gradually varied from the lower position to the upper position in one of the core leading portion and the rising portion.

13. A magnetic head according to claim 1, wherein the thickness of the upper core layer at an apex where the upper surface is spaced farthest apart from the lower core layer is smaller than the thickness of the upper core layer at a leading edge of the upper core layer opposing the recording medium.

14. A magnetic head according to claim 1, further comprising a magnetic pole layer at least one of regions between the lower surface of the upper core layer and the non-magnetic gap layer and between the non-magnetic gap layer and the lower core layer, wherein the magnetic pole layer is narrower in a width dimension than the upper core layer.

15. A magnetic head according to claim 10, wherein the thickness of the upper core layer at an apex where the upper surface is spaced farthest apart from the lower core layer is smaller than the thickness of the upper core layer at a leading edge of the upper core layer opposing the recording medium.

16. A magnetic head according to claim 10, further

comprising a magnetic pole layer at least one of regions between the lower surface of the upper core layer and the non-magnetic gap layer and between the non-magnetic gap layer and the lower core layer, wherein the magnetic pole layer is narrower in a width dimension than the upper core layer.